

## 4.5 Central Facilities Area

The Central Facilities Area (CFA) is located in the south-central portion of the INEEL and has been used since 1949 to house many support services for all of the operations at the INEEL, including laboratories, security operations, fire protection, a medical facility, communication systems, warehouses, a cafeteria, vehicle and equipment pools, and the bus system (see Figure 4-5). CFA was designated WAG 4 in the FFA/CO. Fifty-two potential contaminant release sites were identified at CFA, including landfills, underground storage tanks, aboveground tanks, dry wells, disposal ponds, soil contamination sites, and a sewage plant.

Three CERCLA RODs issued in 1992, 1995, and 2000 addressed 52 release sites. Sites investigated at CFA include landfills, spills, ponds, storage tanks, dry wells, a sewage treatment plant, and buildings and structures. All sites are addressed in the *Final Comprehensive Record of Decision for Central Facilities Area Operable Unit 4-13* (DOE-ID 2000a).



Figure 4-5. Aerial view of the Central Facilities Area.

### 4.5.1 Current State

A current state map showing CFA is included as Figure 4-5a1. The final site at CFA that required remedial action, the Disposal Pond (CFA-04), was remediated in the fall of 2003. There are five sites at CFA that require institutional controls because of residual contamination—three closed landfills (CFA-01, CFA-02, and CFA-03), the CFA French Drains (CFA-07), and the CFA Sewage Treatment Plant Drainfield (CFA-08). Each of these sites is briefly discussed below. A current state conceptual site model for CFA is included as Figure 4-5a2.

The CFA-04 Disposal Pond was used from approximately 1953 to 1969 to collect run-off from CFA and to dispose of laboratory waste. Mercury and radionuclides from research activities were contained in the wastewater discharges. Simulated calcine, a dry granular material contaminated with mercury, was dumped at the edge of the pond and subsequently dispersed by wind, contaminating soil

north of the Disposal Pond. The selected alternative for the Disposal Pond was excavation, treatment by stabilization with Portland cement, and disposal in the ICDF. Excavation was completed in October 2003. The excavated material was contaminated soil and asbestos-containing material. Soil with low levels of mercury and no radioactivity above background levels was placed in the CFA landfill. Radioactive soil with low levels of mercury was placed in the ICDF, and approximately 960 yd<sup>3</sup> of material were staged for treatment with Portland cement before disposal in the ICDF. The excavation was backfilled with clean soil to preexcavation grade, graded to blend in with the surrounding terrain, and revegetated. Long-term institutional controls are not anticipated for CFA-04 but will be evaluated after remediation is complete.

The CFA-08 Sewage Treatment Plant Drainfield was used to dispose of sanitary wastewater and wastewater from the INEEL laundry. From 1955 to 1995, the laundry cleaned protective clothing contaminated with low levels of radionuclides. The discharge contained residual quantities of radionuclides. The only COC is cesium-137, which poses a potential human health risk. The selected alternative for CFA-08 was containment. The site was capped with an engineered protective cover in 2002. The cover will isolate the waste, inhibit intrusion by plants and animals, reduce water infiltration, and prevent wind dispersal of the waste while the cesium-137 decays. Institutional controls will be used to restrict access and intrusion. Institutional controls include visible access restrictions, control of activities (drilling or excavation), and publication of surveyed boundaries and descriptions of land-use controls in the *Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan* (DOE-ID 1996).

The CFA-01, CFA-02, and CFA-03 Landfills, a total area of approximately 35 acres, contain trash, cafeteria garbage, wood, masonry, scrap metal, weeds, gravel, asphalt, and asbestos. Asbestos and various chemicals are potentially present but at concentrations below risk-based levels. Even though the risk assessment indicated the landfills did not present an unacceptable risk to human health, remedial actions were conducted because of uncertainty regarding waste type and composition. The three landfills were capped with engineered native soil covers in 1997. Institutional controls include signs and permanent markers, control of activities (drilling or excavation), and publication of surveyed boundaries and descriptions of controls in the Site institutional controls database. A fourth landfill at CFA is currently operating. Groundwater monitoring for VOCs, metals, and nitrates; vadose zone gas monitoring; infiltration monitoring; and maintenance of the landfill covers are required under the *Final Comprehensive Record of Decision for Central Facilities Area Operable Unit 4-13* (DOE-ID 2000a).

The CFA-07 French Drains received diluted acids and bases. These two drains were unlined, concrete block cylinders, approximately 4 ft in diameter and 8 ft deep. The cylinders have been removed. It is suspected that lead concentrations above 400 mg/kg and radionuclides may be present at depths greater than 13 ft. This site was determined to require no further action, but institutional controls were established to prohibit future residential land use at depths greater than 10 ft. These controls consist of property transfer requirements.

The Snake River Plain Aquifer underlies the CFA landfills at a depth of 476–495 ft below ground. Groundwater monitoring has been conducted in order to ensure drinking water standards are not exceeded in the aquifer because of migration of contaminants from the landfills. Groundwater samples were collected from 11 wells in the vicinity of the CFA landfills and analyzed for VOCs, anions, metals, and alkalinity. Nitrate was the only analyte that was detected above an MCL. Nitrate concentrations greater than the 10-mg/L MCL for sensitive populations were present in CFA-MON-002 (19.8 mg/L) and CFA-MON-A-003 (11 mg/L) (see Figure 4-5a1). The 10-mg/L MCL applies if the water is available to sensitive populations, such as infants below 6 months of age. A higher MCL of 20 mg/L applies if the water is not available to infants below 6 months of age or to other sensitive populations. The nitrate concentrations have remained stable from 1995 through 2002, with one exception of low values in 1997. Concentrations in all other wells at CFA had nitrate concentrations less than 4 mg/L (INEEL 2003).

The CFA-04 Disposal Pond appears to be the probable source of nitrate in the two wells, as it is located upgradient of the wells. Liquid laboratory waste deposited in the pond between 1953 and 1969 is believed to have included nitrate-containing materials. Since the CFA-04 site was remediated in 2003, nitrate concentrations are expected to decrease. The OU 4-13 ROD (DOE-ID 2000a) predicted that nitrate concentrations would be below 10 mg/L by 2015. Further investigation of the elevated nitrate concentrations was not required by the ROD; however, annual determinations of nitrate levels will continue and be evaluated during 5-year reviews. After the nitrate concentration falls below the MCL of 10 mg/L, annual reporting to the state and EPA will cease (DOE-ID 2000a).

#### **4.5.2 End State**

A map showing CFA at the 2035 end state is provided as Figure 4-5b1. The CFA-08 Sewage Treatment Plant Drainfield will remain under institutional control until radioactive decay reduces the cesium-137 concentration to below risk-based levels in about 185 years. It is expected that institutional controls will also still be required at the CFA landfill sites and at CFA-07 (French Drain site) to prevent intrusion (drilling and excavation) in these areas. It is not anticipated that CFA-04 will require institutional controls. A conceptual site model for CFA at the risk-based end state is provided as Figure 4-5b2.

NE is now designated as the laboratory's LPSO and has assumed ownership of the laboratory's common-use support facilities and infrastructure, which include all of the 72 buildings at CFA. New programs are anticipated to be funded and will require either new construction or support from existing CFA facilities. DOE will determine which of the buildings will be needed for future missions. Since CFA will have a long-term nuclear mission, Figure 4-5b1 shows all of the current state facilities and structures although it is possible that some of the buildings may be decommissioned by 2035.

#### **4.5.3 Variances**

No variances have been identified for CFA, as all active remediation has been completed.

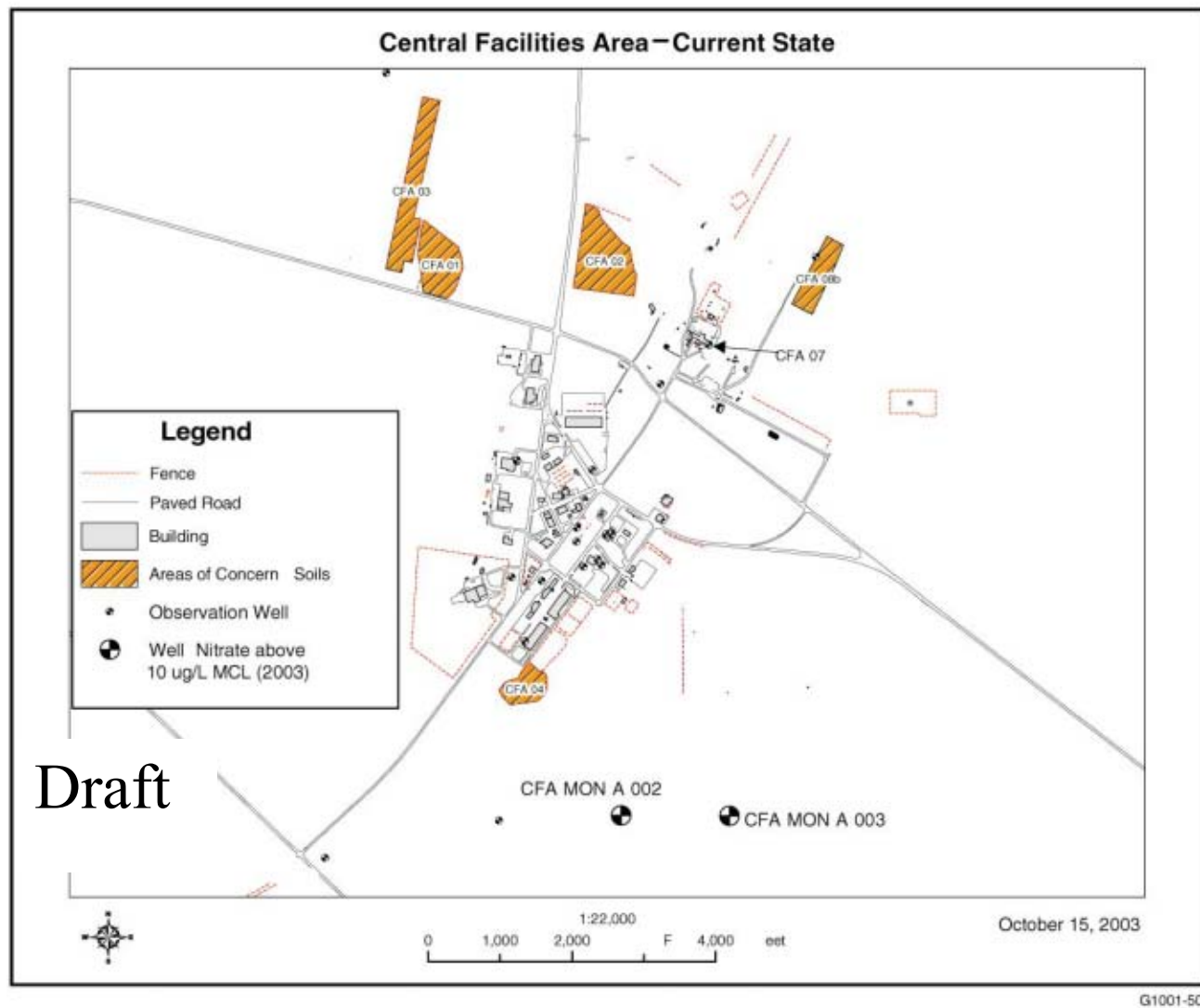
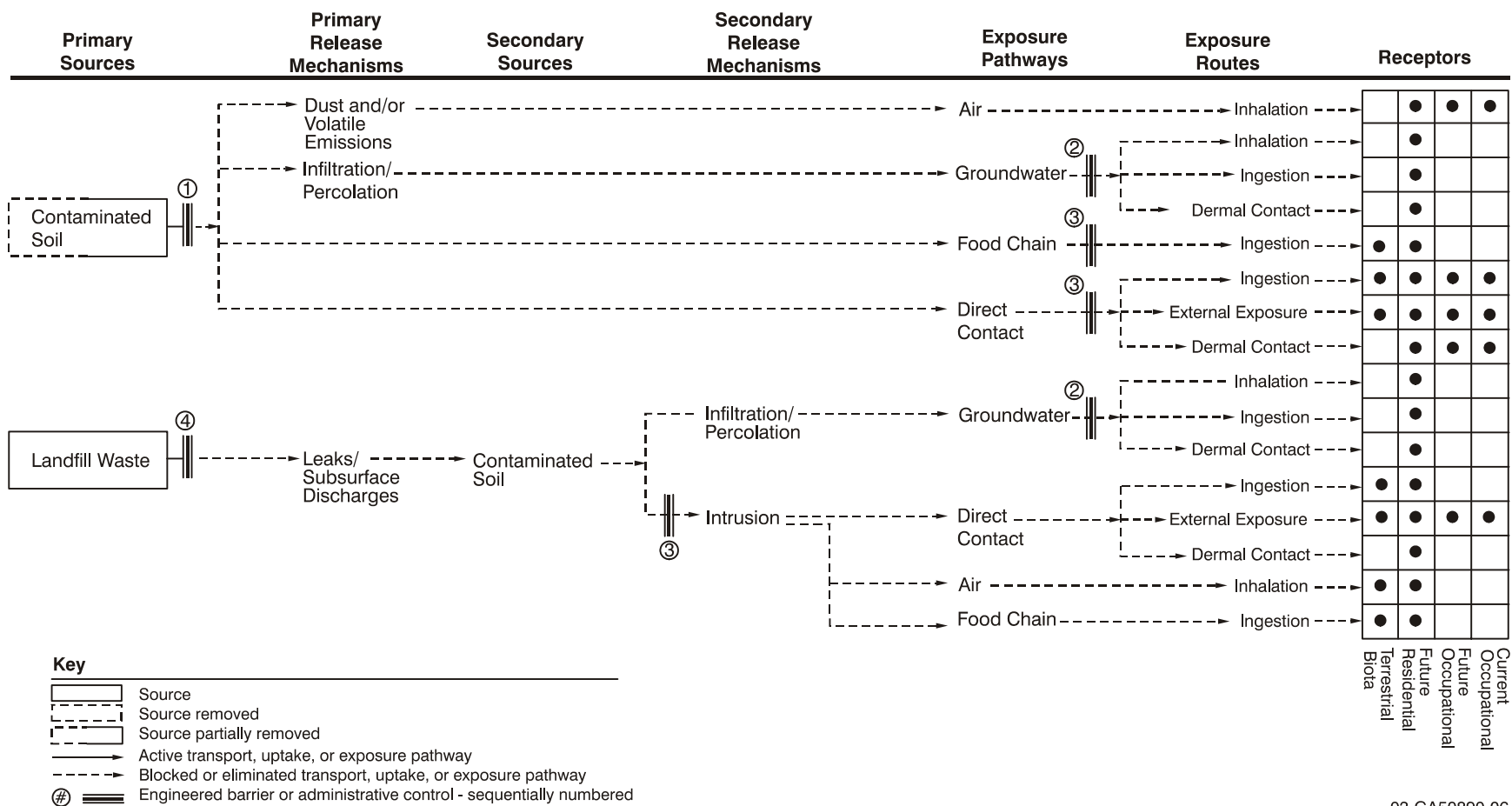


Figure 4-5a1. Central Facilities Area map—current state.



03-GA50890-06

Figure 4-5a2. Central Facilities Area conceptual site model—current state.

## Narrative for Figure 4-5a2 Central Facilities Area Conceptual Site Model—Current State

All active remedial actions have been completed. There are currently five sites where institutional controls are in place because residual contamination precludes unrestricted access. These areas include:

- Three capped landfill sites (CFA-01, CFA-02, and CFA-03).
- The CFA-07 French Drain site. The French Drains have been removed, and the site does not present a human health risk to a depth of 10 ft. However, institutional controls are in place to control activities, such as drilling or excavation, as residual lead and radionuclide contamination is suspected at depths below 13 ft.
- The CFA-08 Sewage Treatment Drainfield site. This area contains cesium-137 above risk-based levels and has been capped with an engineered native soil cover. Institutional controls are maintained to protect occupational and hypothetical residential receptors while the radionuclides decay. The estimated time for the cesium-137 to decay to levels that do not present a risk for residential use is 185 years.

One additional site, the CFA-04 Disposal Pond area was recently remediated by excavation and removal of contaminated soil. It is not anticipated that institutional controls will be needed at this site. Confirmatory sampling and calculations will be used to verify that the average residual mercury concentration is below the final remediation goal.

The steps taken to mitigate or remove these hazards are as follows:

1. The selected remedy for the CFA-04 site was excavation of mercury contaminated with disposal in the ICDF, thus removing the source of contamination. The CFA-08 site was capped with an engineered native soil cover in 2002. The cover isolates the contaminated soil, inhibits intrusion by plants and animals, reduces water infiltration, and prevents dust or volatile emissions from the site. Institutional controls include visible access restrictions, control of activities (drilling or excavation), and publication of surveyed boundaries and descriptions of land-use controls in the Site institutional controls database. The source of contamination at the CFA-07 site was also removed; however, some residual contamination is suspected to remain below 13 ft. Therefore, institutional controls were established to prohibit future residential land use at depths greater than 10 ft. These controls consist of property transfer requirements. The entire INEEL Site has restricted access to prevent intrusion by the public.
2. Nitrate concentrations are above the 10-mg/L MCL for sensitive populations (e.g., infants below 6 months of age) in two monitoring wells at CFA. The source of the elevated nitrate is believed to be the CFA-04 Disposal Pond site. This site was remediated in 2003, so nitrate concentrations are expected to decrease. Nitrate concentrations are determined annually. Nitrate concentrations and trends will be evaluated during the 5-year reviews to determine if any actions are needed.

No unacceptable risks were predicted through the groundwater pathway from sites at WAG 4 in the *Comprehensive Remedial Investigation/Feasibility Study for the Central Facilities Area Operable Unit 4-13 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 2000b). The entire INEEL Site has restricted access to prevent intrusion by the public.

3. The entire INEEL Site has restricted access to prevent intrusion by the public. Workers are protected through posting of signs at contaminated sites, by recording contaminated sites in the Site institutional controls database, through radiological control training, and through the work control process used to identify hazards and mitigation measures for planned work activities.
4. The three landfill sites were capped with engineered native soil covers in 1997. Institutional controls include signs and permanent markers, control of activities (drilling and excavation), and publication of surveyed boundaries and descriptions of controls in the Site institutional controls database. Groundwater monitoring for VOCs, metals, and nitrates; vadose zone gas monitoring; infiltration monitoring; and maintenance of the landfill covers are conducted as required by the OU 4-13 ROD (DOE-ID 2000a).

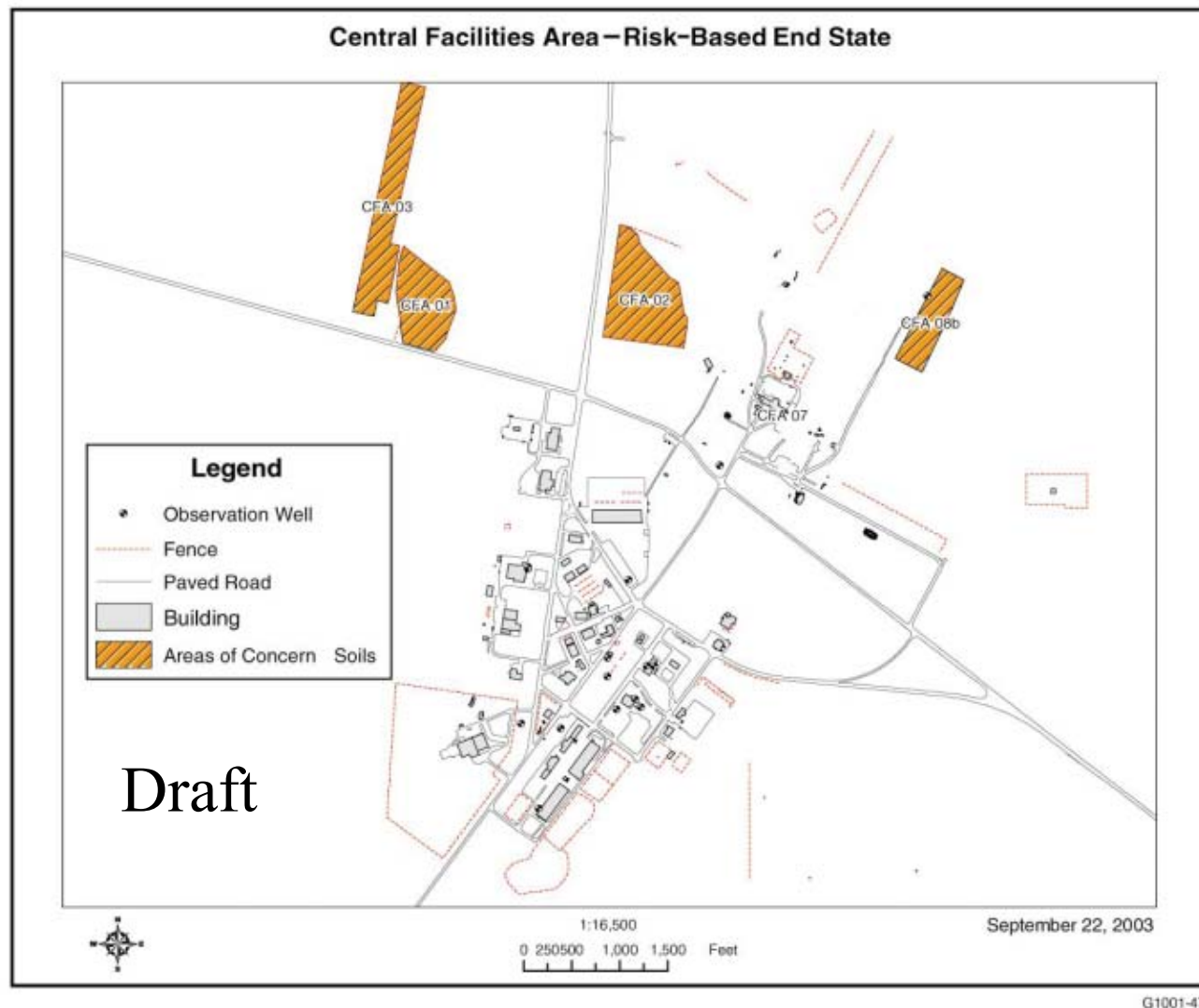


Figure 4-5b1. Central Facilities Area map—risk-based end state.



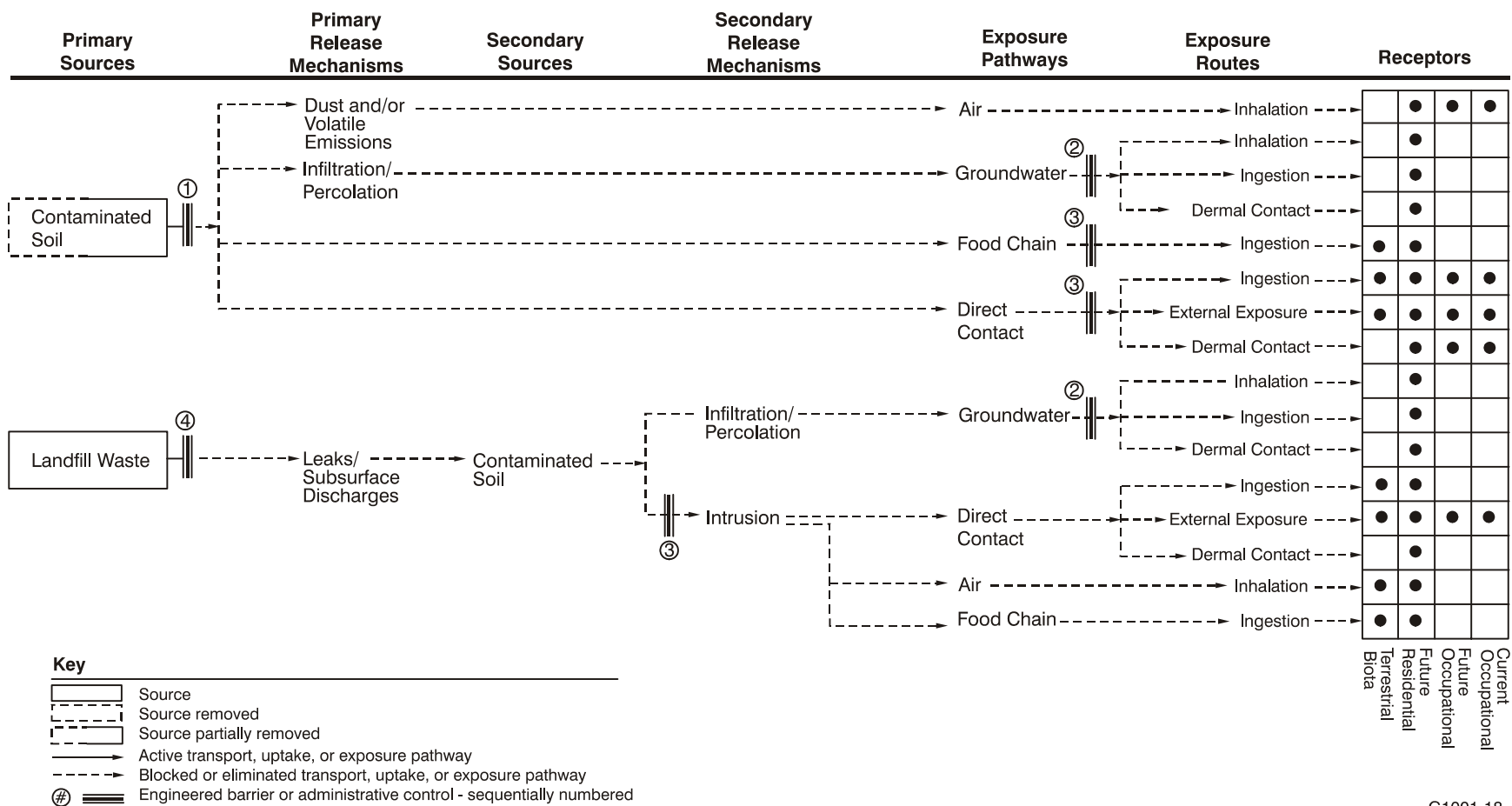


Figure 4-5b2. Central Facilities Area conceptual site model—risk-based end state.

## Narrative for Figure 4-5b2 Central Facilities Area Conceptual Site Model—Risk-Based End State

At the end of the EM cleanup mission, it is expected that institutional controls will continue to be required to protect human health at all but one of the sites that currently require institutional controls. The four sites where institutional controls will continue to be required include:

- Three capped landfill sites (CFA-01, CFA-02, and CFA-03)
- The CFA-07 French Drain site. The French Drains have been removed, and the site does not present a human health risk to a depth of 10 ft. However, institutional controls are in place to control activities, such as drilling or excavation, as residual lead and radionuclide contamination is suspected at depths below 13 ft.
- The CFA-08 Sewage Treatment Drainfield site. This area contains cesium-137 above risk-based levels and has been capped with an engineered native soil cover. Institutional controls will be maintained to protect occupational and hypothetical residential receptors while the radionuclides decay. The estimated time for the cesium-137 to decay to levels that do not present a risk for residential use is 150 years following the end of the EM cleanup mission.

The steps taken to mitigate or remove these hazards are as follows:

1. The CFA-08 site was capped with an engineered native soil cover in 2002. The cover isolates the contaminated soil, inhibits intrusion by plants and animals, reduces water infiltration, and prevents dust or volatile emissions from the site. Institutional controls include visible access restrictions, control of activities (drilling or excavation), and publication of surveyed boundaries and descriptions of land-use controls in the Site institutional controls database. The source of contamination at the CFA-07 site was also removed; however, some residual contamination is suspected to remain below 13 ft. Therefore, institutional controls were established to prohibit future residential land use at depths greater than 10 ft. These controls consist of property transfer requirements. The entire INEEL Site has restricted access and use to prevent intrusion by the public.
2. All groundwater at CFA will be below MCLs at the end state. The entire INEEL Site has restricted access and use to prevent intrusion by the public.
3. The entire INEEL Site has restricted access to prevent intrusion by the public. Workers are protected through posting of signs at contaminated sites, by recording contaminated sites in the Site institutional controls database, through radiological control training, and through the work control process used to identify hazards and mitigation measures for planned work activities.
4. The three landfill sites were capped with engineered native soil covers in 1997. Institutional controls include signs and permanent markers, control of activities (drilling and excavation), maintenance of the covers, and publication of surveyed boundaries and descriptions of controls in the Site institutional controls database. It is possible that some of the monitoring activities currently required by the OU 4-13 ROD (DOE-ID 2000a) may be discontinued based on the results of 5-year reviews.